

## Clinical Policy: Intensity-modulated Radiotherapy

Reference Number: PA.CP.MP.69

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### Description

Medical necessity criteria for intensity-modulated radiotherapy (IMRT). IMRT is an advanced form of 3-dimensional (3-D) conformal radiation therapy. It delivers a more precise radiation dose to the tumor while sparing healthy surrounding tissue. While IMRT empirically offers advances over other radiation therapies, an understanding of accepted practices and the risks and benefits over conventional or 3-D conformal radiation must be considered..

### Policy/Criteria

- I. It is the policy of Pennsylvania Health and Wellness<sup>®</sup> that IMRT is **medically necessary** for any of the following indications:
  - A. Age  $\leq$  18 years;
  - B. Target volume is in close proximity to critical structures that must be protected;
  - C. The volume of interest must be covered with narrow margins to adequately protect immediately adjacent structures;
  - D. An immediately adjacent area has been previously irradiated and abutting portals must be established with high precision;
  - E. The target volume is concave or convex, and critical normal tissues are within or around that convexity or concavity;
  - F. Dose escalation is planned to deliver radiation doses in excess of those commonly utilized for similar tumors with conventional treatment;
  - G. Indications by cancer site include any of the following:
    1. Primary or benign tumor(s) of the central nervous system, including brain, brain stem, and spinal cord;
    2. Primary tumor(s) of the spine where spinal cord tolerance may be exceeded by conventional treatment;
    3. Primary or benign lesion(s) of the head and neck area including orbits, sinuses, skull base, aerodigestive tract (lips, mouth, tongue, tonsils, nose, throat, vocal cords and part of the trachea and esophagus), salivary glands, and thyroid;
    4. Anal or perianal cancer, excluding locally recurrent perianal cancer;
    5. Prostate cancer, definitive (curative) treatment;
    6. Vulvar cancer, definitive (curative) treatment;
    7. Cervical cancer, curative treatment, any of the following:
      - a. Post-hysterectomy;
      - b. For treatment that includes para-aortic nodes;
      - c. For high doses of radiation in the presence of gross disease in regional lymph nodes;
    8. Select breast cancer cases, any of the following:
      - a. Homogeneity of dose cannot be achieved with conventional three dimensional planning techniques, demonstrated by any of the following:
        - i. A maximum dose of greater than 110% is given to a volume of at least 0.3 cc;

- ii. The volume of breast tissue receiving 105% of the prescribed dose exceeds 10% (or 20% for a large volume breast defined as greater than 800 cc);
- iii. Hot spots in the inframammary fold are 105% or greater;
- b. The volume of lung tissue receiving 20 Gy exceeds 20%;
- c. The volume of heart tissue receiving 25 Gy exceeds 2%.

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**Background**

A major goal of radiation therapy is the delivery of an appropriate dose of radiation to the targeted tissue while minimizing radiation exposure to the surrounding healthy tissue. The introduction of IMRT allowed for significant improvement of dose distributions by irradiating sub-regions of the target to different levels. It uses a computer-based planning method called inverse planning that allows the delivery of generally narrow, patient specific spatially and often temporally modulated beams of radiation to solid tumors within a patient.

IMRT changes the intensity of radiation in different parts of a single radiation beam while treatment is delivered. The dose of radiation given by each beam can also vary, enabling IMRT to simultaneously treat multiple areas within the target to different dose levels. Theoretical concerns about IMRT include dose inhomogeneity, additional time required for planning computation and QA verification, and exposure of larger volumes of normal tissues to a lower dose of radiation.

There were a number of studies done, including a multicenter, randomized, double-blind trial that have noted IMRT improved the homogeneity of the radiation dose distribution and decreased acute toxicity, when used for breast cancer.<sup>23,24,25,26,27</sup>

*NCCN*

NCCN recommends IMRT in a number of cancer types, including cancers whose radiation treatment may affect organs or other critical structures at risk.

**Coding Implications**

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CPT® Codes	Description
77301	Intensity modulated radiotherapy plan, including dose-volume histograms for target and critical structure partial tolerance specifications
77338	Multi-leaf collimator (MLC) device(s) for intensity modulated radiation therapy (IMRT), design and construction per IMRT plan

<b>CPT® Codes</b>	<b>Description</b>
77385	Intensity modulated radiation treatment delivery (IMRT), includes guidance and tracking, when performed; simple
77386	Intensity modulated treatment delivery (IMRT) includes guidance and tracking, when performed; complex

<b>HCPCS Codes</b>	<b>Description</b>
G6015	Intensity modulated treatment delivery, single or multiple fields/arcs, via narrow spatially and temporally modulated beams, binary, dynamic MLC, per treatment session
G6016	Compensator-based beam modulation treatment delivery of inverse planned treatment using 3 or more high resolution (milled or cast) compensator, convergent beam modulated fields, per treatment session

**ICD-10-CM Diagnosis Codes that Support Coverage Criteria**

<b>ICD-10-CM Code</b>	<b>Description</b>
C00.0-C14.9	Malignant neoplasm of lip, oral cavity, and pharynx
C15.3-C15.9	Malignant neoplasm of esophagus
C21.0-C21.8	Malignant neoplasm of anus and anal canal
C25.0-C25.9	Malignant neoplasm of pancreas
C26.9	Malignant neoplasm of ill-defined sites within the digestive system
C30.0	Malignant neoplasm of nasal cavity
C31.0-C31.9	Malignant neoplasm of accessory sinus
C32.0-C32.9	Malignant neoplasm of larynx
C33	Malignant neoplasm of trachea
C41.0	Malignant neoplasm of bones of skull and face
C41.2	Malignant neoplasm of vertebral column
C44.500	Unspecified malignant neoplasm of anal skin
C48.0	Malignant neoplasm of retroperitoneum
C48.1	Malignant neoplasm of specified parts of peritoneum
C48.8	Malignant neoplasm of overlapping sites of retroperitoneum and peritoneum
C50.011-C50.929	Malignant neoplasm of breast
C51.0-C51.9	Malignant neoplasm of vulva
C53.0-C53.9	Malignant neoplasm of cervix uteri
C61	Malignant neoplasm of prostate
C69.60-C69.62	Malignant neoplasm of orbit
C70.0-C70.9	Malignant neoplasm of meninges
C71.0-C71.9	Malignant neoplasm of brain
C72.0- C72.9	Malignant neoplasm of spinal cord, cranial nerves and other parts of central nervous system

ICD-10-CM Code	Description
C76.1	Malignant neoplasm of thorax
C76.2	Malignant neoplasm of abdomen
C73	Malignant neoplasm of thyroid gland
C76.3	Malignant neoplasm of pelvis
D10.0-D11.9	Benign neoplasm of mouth and pharynx
D13.0	Benign neoplasm of esophagus
D14.1	Benign neoplasm of larynx
D14.2	Benign neoplasm of trachea
D16.4	Benign neoplasm of bones of skull and face
D31.60-D31.62	Benign neoplasm of unspecified site of orbit
D33.0-D33.9	Benign neoplasm of brain, and other parts of central nervous system
D34	Benign neoplasm of thyroid gland
Z85.01	Personal history of malignant neoplasm of esophagus
Z85.020-Z85.028	Personal history of malignant neoplasm of stomach
Z85.040-Z85.048	Personal history of malignant neoplasm of rectum, rectosigmoid junction, and anus
Z85.07	Personal history of malignant neoplasm of pancreas
Z85.12	Personal history of malignant neoplasm of trachea
Z85.21	Personal history of malignant neoplasm of larynx
Z85.22	Personal history of malignant neoplasm of nasal cavities, middle ear, and accessory sinuses
Z85.3	Personal history of malignant neoplasm of breast
Z85.41	Personal history of malignant neoplasm of cervix uteri
Z85.44	Personal history of malignant neoplasm of other female genital organs
Z85.46	Personal history of malignant neoplasm of prostate
Z85.810-Z85.819	Personal history of malignant neoplasm of lip, oral cavity, and pharynx
Z85.840	Personal history of malignant neoplasm of eye
Z85.841	Personal history of malignant neoplasm of brain
Z85.850	Personal history of malignant neoplasm of thyroid
Z86.011	Personal history of benign neoplasm of brain
Z86.018	Personal history of other benign neoplasm

Reviews, Revisions, and Approvals	Date	Approval Date
Added thyroid and tonsils as subtypes to head and neck cancer list; added cervical, vulvar, perianal cancer indications per NCCN. Updated background. Removed option for CNS, spinal, and head and neck tumors to be metastatic. Replaced descriptive breast cancer indication criteria with specific radiation parameters. Removed deleted CPT code	03/19	6/7/2019

Reviews, Revisions, and Approvals	Date	Approval Date
0073T and added HCPCS G6016. Specialist reviewed. References reviewed and updated.		
Coding updates: Removed deleted CPT 77418; updated ICD-10-CM codes per 02/19 criteria updates; ICD codes updated C00.0-C14.8 now C14.9 and description correction for C30. References reviewed and updated. Specialist reviewed. Annual Review performed.	2/26/2021	

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